REMARKS

Claims 1-3 remain in the application, the claims having been amended to more clearly define the invention. Reconsideration of the application and allowance of all claims are respectfully requested in view of the above amendments and the following remarks.

The present invention is directed to an improvement over USP 6,567,382 (Australian application 44470/99 discussed in the Background section of the present application). The prior arrangement kept track of the various available paths for transmission and the load on each, and divided the transmission of data amongst the various paths based on capacity. The '382 patent also gives preference to shorter paths. The present invention improves upon this by consulting the Differentiated Services (DS) field in the header and using this information to assist in the choice of transmission path. As indicated at lines 29-31 of page 3, the DS field may be used directly as a QoS indicator, or it may be used to derive a QoS indicator, and in either case the QoS indicator is then used in the path selection.

Page 5 describes an example where there are five different levels of service, which can be considered as three levels EF, AF and BE, with sub-designations within two of the levels. From a general standpoint, the higher urgency data is given higher priority to the shortest paths.

Scharber describes an optimization arrangement involving protocol selection and cache query resolution. The system does take into account load considerations in choosing a protocol or in choosing the manner in which cache queries will be handled, but there is no discussion of selection of transmission paths. The examiner is also correct in that Scharber does not discuss the reliance on QoS flags.

Boudreau is directed to load balancing amongst extranet switches. As discussed at lines 40-48 of column 4, the switches communicate with one another to exchange information about their current loads. Fig. 3 illustrates the message format used by the switches. As described at lines 31-53 of column 5, the message includes a field 350 in which each switch can indicate how many connections it has available for each level of QoS. As described at lines 7-14 of column 8, a metric is calculated which is a function of the number of available connections and the amount of processor idle time, and the best switch according to the metric is selected for an incoming connection request.

It is readily apparent that other than in the generic sense that load balancing is good for routing selection, the present invention and the Boudreau system are quite different. Boudreau allocates in advance a number of connections which each switch will have for each QoS, and then looks to see where those are available. From a practical standpoint this means that two connection requests with different levels of QoS do not compete for the same connection resources. For example, if a connection request with the highest level of service finds that a particular switch has no connections available at the highest level of QoS, the connection request will be served by a different switch which has connections available for that QoS. At the same time, a connection request with a lower QoS may be serviced by the switch which turned away the high priority connection request, because the switch may have a connection available at that lower level of QoS.

A further distinction is that Boudreau pays no attention to path length. Boudreau does give a preference to a local connection vs. a remote connection, but the preference has nothing to

do with path length and is simply a reflection of the fact that when a connection request is received at a local switch there is a certain amount of overhead required to change to a different switch. This is discussed, for example, at lines 1-27 of column 9.

With respect to the claims, and turning first to claim 2, that claim requires that in the allocation step "the highest priority messages being allocated to the shorter paths with available capacity in preference to lower priority messages, the lower priority messages being allocated to longer paths as traffic conditions require." In Boudreau, the local connection is preferred to a remote connection, but this fails to satisfy the quoted claim language on two grounds. First, Boudreau is talking about a single switch and not an entire path from sending node to receiving node. The local switch could be chosen and still not have the shortest path between sending and receiving nodes. Second, and importantly, Boudreau does not allocate higher priority connection requests to the local switch in preference to lower priority connection requests. If there is a lower QoS connection available on the local switch then the lower QoS connection request can be serviced by the local switch even if it cannot handle a higher QoS connection request because its higher QoS connections are all used up. Boudreau gives preference to the local switch over a remote switch, but does not say anything about, when two connection requests are received with different QoS, giving preferential access to the local switch itself based on QoS.

Claim 2 has been rewritten in independent form while also edited for clarity, and is believed to patentably distinguish over the applied art for the reasons discussed above.

Turning now to claim 1, that claim (as amended) describes the allocation of messages to paths such that there are plural paths available to a message and the allocation takes into account

the QoS level of the message in selecting one of the available paths. Boudreau does not do this. Boudreau uses the QoS to determine which switches are available, but then allocates without regard to QoS level.

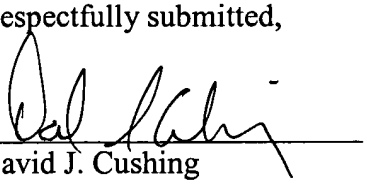
Claim 3 has been amended to a new independent claim patterned after claim 1 but emphasizing a different distinctive aspect of the invention. In the Boudreau system, a switch that has no connections available for the QoS associated with a particular connection request is simply not available, i.e., it is at 100% of capacity for connections of the type being requested. Boudreau then looks at those that are available, and allocates the connection based on the calculated metric. This might be analogous to a modification of the present invention where certain quotas of capacity on each path segment would be allocated to different QoS. But in such an arrangement, as in Boudreau, connections/messages with different classes of service do not compete for the same resources. In the present invention, on the other hand, the path resources are shared across QoS levels, with higher QoS levels being given preferential access to paths in some manner., i.e., there is at least one path available to traffic of different QoS levels and a message of higher QoS level has preferential access to said at least one path relative to a message having a lower QoS level. Boudreau does not do this. Since the "paths" in Boudreau are segregated by QoS, there is no path/connection which is available to connections of two different QoS levels.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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